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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/810,643

03/29/2004

Mitsuru Sube

M1071.1901

9578

32172

7590

02/03/2006

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EXAMINER

DOUGHERTY, THOMAS M

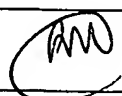
ART UNIT

PAPER NUMBER

2834

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/810,643	SUBE, MITSURU	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thomas M. Dougherty	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 11-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>03/29/04</u>  | 6) <input type="checkbox"/> Other: _____                                    |

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Qiu et al. (US 6,419,848). Qiu et al. show (fig. 3D) a piezoelectric ceramic body (20) comprising a plurality of piezoelectric material particles (42) and dielectric particles (43) comprising a dielectric material having a higher dielectric constant than said piezoelectric material, the dielectric disposed in gaps between the piezoelectric particles.

The piezoelectric material (42) is at least one member of the group consisting of lead titanate zirconate, lead titanate, lead titanate zirconate containing a composite perovskite compound as a solid solution therein, and lead titanate containing a composite perovskite compound as a solid solution therein. See col. 6 lines 36-49.

The dielectric material (43) is at least one member of the group consisting of a composite perovskite compound, a solid solution of a composite perovskite compound and lead titanate, and the combination of a dielectric constant enhancement oxide and a piezoelectric material. See col. 8, lines 36-47.

The dielectric powder (43) has a particle size which is not more than about 1/4 of the particle size of the piezoelectric powder. See claims 4 and 5. The dielectric material (43) is at least one member of the group consisting of a composite perovskite

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compound, a solid solution of a composite perovskite compound and lead titanate, and the combination of a dielectric constant enhancement oxide and a piezoelectric material. Again see col. 8, lines 36-47.

The dielectric powder (43) has a particle size which is not more than about 1/4 of the particle size of the piezoelectric powder. See claims 4 and 5.

As noted, the body (20) has an outer surface with an electrode (5) thereon.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qui et al. (US 6,419,848). Given the invention of Qui et al. as noted above, they further show that the body (20) has an outer surface with an electrode (5) thereon. It is unknown whether or not the dielectric powder content does not exceed about 3 weight parts per 100 weight parts of the piezoelectric powder. While this is unknown, it is certainly possible in the device of Qui et al. However, employment of such a range of weights would have been obvious to one of ordinary skill in the art since it has been held that where the general conditions of a claim are disclosed in the prior art,

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discovering the optimum or workable ranges involves only routine skill in the art. In re  
Aller, 105 USPQ 233.

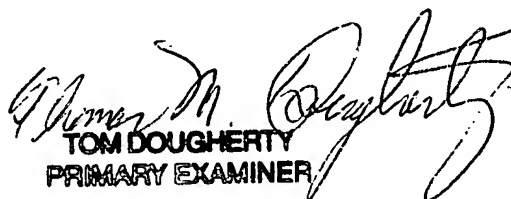
**Conclusion**

The prior art made of record and not relied upon is considered pertinent to  
applicant's disclosure. The remaining prior art reads on some aspects of the claimed  
invention.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

*tmd*  
tmd

January 24, 2006

  
TOM DOUGHERTY  
PRIMARY EXAMINER